Johnson, James

From: Hayes, Scott
Sent: Friday, April 25, 2014 2:10 PM
To: Tapia, Cecilia; Johnson, James
Cc: Field, Jeff; Gravatt, Dan; Hammerschmidt, Ron; Hooper, Charles A.; Mahler, Tom
Subject: RE: Canberra ECAM air monitors

OK - thanks

Scott D. Hayes, Chief
Emergency Response & Removal South
Regional Response Team 7 Co-Chair
U.S. Environmental Protection Agency
11201 Renner Boulevard
Lenexa, Kansas 66219
913-551-7670 (o)
913-645-3217 (m)

From: Tapia, Cecilia
Sent: Friday, April 25, 2014 10:59 AM
To: Johnson, James; Hayes, Scott
Cc: Field, Jeff; Gravatt, Dan; Hammerschmidt, Ron; Hooper, Charles A.
Subject: FW: Canberra ECAM air monitors

James/Scott: If possible it would be good to try the Canberra units since they have the ability to get us data in hours versus months. I agree with Chuck that we should try to rent them to see if they work.

Cecilia Tapia
Director, Superfund Division
U.S. Environmental Protection Agency - Region 7
11201 Renner Blvd.
Lenexa, KS 66219

Phone: (913)551-7733 Cell: (913)449-4171
Email: tapia.cecilia@epa.gov

From: Hooper, Charles A.
Sent: Friday, April 25, 2014 10:56 AM
To: Tapia, Cecilia
Subject: Canberra ECAM air monitors

Cecilia,
We just got some important feedback from Missouri DNR and Health & Sr Services. They are recommending we include a near real-time alpha and beta component near the Derived Air Concentration level as part of the air monitoring network for West Lake. In the current proposal in the task order we didn't have the near real-time component, and instead had particulate monitors that would collect weekly air samples and then laboratory analysis which would push back the results to 4-6 weeks. I just talked with Sam Poppell, one of the RERT Team Commanders, and he suggested we

use the type of air monitors that NASA uses when there is a Radiothermal Generator launch, the Canberra ECAM. I don't know of any other real-time alpha spec unit that has the telemetry and detection limits like this other than the Canberra ECAM. I suggest we try to rent 6 of these units as soon as possible. I'll work with our HQ ORIA/RPD staff to see if NASA/DOE would be interested in loaning some of these units as part of a cooperative agreement.
Thanks,
-Chuck

http://www.canberra.com/products/env_rad_monitoring/pdf/ECAM-SS-C36529.pdf

Chuck Hooper, CHP
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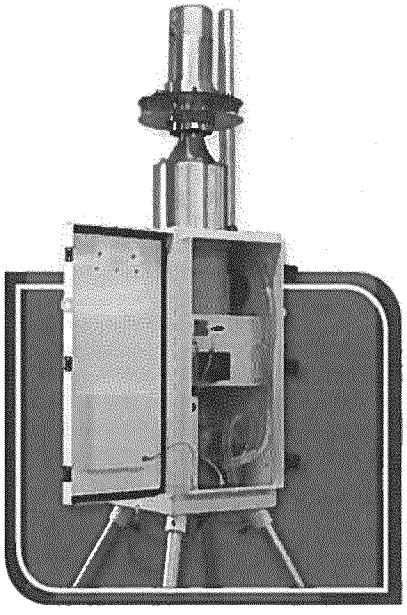
CANBERRA

Features

- Continuous Air Monitor for Alpha and Beta particulates
- Alpha spectroscopy and gross beta counting
- Optimized for Environmental Air Sampling including windy, outdoor conditions
- Built-in cyclone removes large particles (>20 µm aerodynamic diameter) to focus sampling on the respirable fraction of the sample, extends filter life
- Uniform sample deposition for more accurate alpha and beta detection
- Chronic alarm based on concentration or DAC-hr
- Acute release alarm in as little as six seconds
- Exponential fit and peak fit background compensation algorithms
- Radon compensation lowers false alarms and increases sensitivity
- Compensation for temperature and altitude
- Optional GPS allows dynamic compensation for altitude up to 15,000 feet
- Optional anemometer
- Local and remote audio and visual alarm annunciation
- RadNet compliant with optional encryption and authentication
- Fully functional HTTP server allows for remote monitoring, configuration and calibration
- Optional data output format for compatibility with Lawrence Livermore National Laboratory (LLNL HOTSPOT) plume modeling code

Alpha Beta Environmental Continuous Air Monitor (ECAM)

Description



The ECAM is designed to provide radiological assessments of potential environmental hazards to personnel and members of the public in the event of the release of alpha-emitting radionuclides. ECAM technology allows real-time field monitoring of concentration, DAC-hr and other parameters for determining potential exposure and improving protection of workers, the public, and the environment.

The unit is encapsulated in a durable, weatherproof assembly engineered to survive in various environmental conditions. It houses a vacuum blower capable of pulling 2 CFM, and can be utilized with customer air handling systems up to 120 L/min (>4 CFM) through a filter sample for large air volume data analysis by the ECAM module. Air is drawn into the inlets at the top of the system and passes through a specially-designed miniature cyclone chamber so that debris and large dust particles are forced out of the air stream as it circulates down into the central portion of the instrument where the CAM head is located.

A 1700 mm^2 PIPS® detector positioned over the sample filter detects alpha and beta emissions from the sample. Built-in preamplifier and MCA electronics collect alpha and beta spectral data for analysis. Alpha spectrums collected for analysis and Radon compensation are also used to compensate the gross Beta count. Accurate flow data are collected using a patented mass flow meter*. The addition of a new 2048-channel Digital Signal Processing (DSP) MCA has expanded the functionality of the ECAM to include compensated gross Beta counting and enhanced Alpha spectroscopy and Radon compensation.

MCA data and sample volume data, as well as instrument status data, are made available for analysis. Data processing for alarm functionality and a graphical user interface are supported by an embedded Pentium®-class single board computer in the ECAM module. A sophisticated background compensation algorithm removes background radon interference to reduce possible false alarms and increase sensitivity.

In addition to performing data analysis, the ECAM module functions as a uniquely-designed web server. This allows easy access to all configuration parameters and provides a convenient method for monitoring throughout an entire local area network via a web browser. A multilevel user security system has been implemented to ensure privacy and prevent accidental misconfigurations by unqualified technicians.

*US Patent 5,337,603

C36529 5/09 Printed in U.S.A.

Alpha Beta Environmental Continuous Air Monitor (ECAM)

FIPS 140-2 COMPLIANT WIRELESS NETWORKING

U.S. Federal entities choosing to incorporate their surveillance, monitoring and detection systems into a wireless network must first address the issue of FIPS compliance. To meet this demand, the ECAM module can be bundled with a FIPS 140-2 compliant cryptographic module to provide encryption and enhanced authentication.

RADNET COMPLIANT

With origins at Los Alamos National Laboratory (LANL), RadNet is a non-proprietary protocol that utilizes standard Internet protocols. (See www.radnet.org.) Its ability to incorporate a wide range of devices has been successfully demonstrated. RadNet's adoption as the *de facto* industry standard for radiation networks also simplifies the development and implementation of ancillary services (e.g., email generation and pager systems). Because the RadNet specification already provides for authentication and encryption, its native mode accommodates the data security requirements of the Homeland Security Community.

Specifications

INPUTS

- PROTOCOLS SUPPORTED – RadNet, HTTP, TCP, UDP.
- HARDWARE PLATFORM – Pentium-class 300 MHz CPU.
- NETWORK INTERFACE – 10Base-T, 802.11b wireless, or Motorola Mesh.
- CONSOLE INTERFACE – DB9 RS-232 port at 38.4 kbaud.
- SENSITIVITY – Approximately 2 DAC-hours with 1700 mm^2 PIPS.
- EFFICIENCY – Approximately 30% for Alpha and 13% for $^{90}Sr/^{90}Y$ Beta at a fixed detector to filter spacing of 5 mm.
- DETECTOR
  - TYPE – Passivated Implanted Planar Silicon (PIPS).
  - SIZE –1700 mm^2.
  - SYSTEM RESOLUTION – Typically 450 keV.
- FILTER CARTRIDGE AND FILTER
  - TYPE – Fluoropore™.
  - PORE SIZE – 5 µm.
  - ACTIVE DIAMETER – 42 mm.

FILTER CARTRIDGE SIZE

Active area	1700 mm^2 (2.64 $in.^2$)
OD	4.765 cm (1.876 in.)
ID	4.191 cm (1.650 in.)
Height	1.91 cm (0.75 in.)

EXTERNAL COMMUNICATIONS

Ethernet and RS-232 interfaces are available for accessing and monitoring of data. The RS-232 interface is a serial console port used with VT-100™ emulator software on an external computer. Hardwired and wireless Ethernet, Motorola Mesh, and satellite communications can all be used to access the web server. Software can be updated locally or remotely via an automatic update utility.

PHYSICAL

- WEIGHT – 27.2 kg (60 lb).

POWER

- 108–132 V ac 50/60 Hz at 11 amps maximum.

ENVIRONMENTAL

- OPERATING TEMPERATURE – Sampling Head: 0–40 °C.
- OPERATING HUMIDITY – Sampling Head: 0–95% relative, non-condensing.

ALARMS

STATUS

- Filter Door Open
- Communication Network Down
- Low Flow Rate
- High Flow Rate
- Detector Operation
- Exposure
  - Acute
  - Chronic
- Concentration

FLOW MEASUREMENT

- RANGE – 0.24 x 10^{-3} to 1.89 x 10^{-3} m^3/s (0.5 to 4.0 cfm).
- RECOMMENDED FLOW SETTING – 1.4 x 10^{-3} m^3/s (3 cfm).
- METER – Type: Hot wire anemometer. Accuracy: ±5%.
- ANSI 42.17B COMPLIANCE – The sampling head is fully compliant.

HISTORICAL DATA STORAGE

Analyzed data is logged into a database and stored in non-volatile RAM at the end of each user defined count cycle. The database contains 1200 entries but may be expanded with a user-supplied mass storage PCMCIA card.

OPTIONS

- Model 00-6829-1.0 Alarm Assembly consisting of 85dB horn and red strobe light.
- Model 07-7106 Fluoropore Filter Paper, 47 mm, package of 100.
- Model AS085 ^{241}Am Alpha Calibration Check Source.
- Model 00-6835-1.0 ^{241}Am ring source for ^{238}Pu sensitivity calibration.
- Model 00-6834-1.0 ^{90}Sr Beta Calibration Check Source.
- Communications Accessories for Wireless, Satellite, or Motorola Mesh.
- Solar Panel.
- Portable Freestanding Mast.
- TLC WirelessWall® FIPS 140-2 Compliant Encryption and Authentication.
- RadHawk Software.
- 00-6833-1.0 Filter cartridges** with heavy duty stainless steel mesh backing, package of 25.
- 00-6681-1.0 Optional Garmin® 16 GPS with RS-485 communications board.
- 00-6682-1.0 Optional FT Technologies FT702 ultrasonic anemometer.

ISO 9001 SYSTEM CERTIFIED

**US Patent 5,404,762

PIPS is a registered trademark of Canberra Industries, Inc.

Pentium is a registered trademark of Intel Corporation in the United States and other countries.

Fluoropore is a trademark of Millipore Corporation.

VT100 is a trademark of Hewlett-Packard Corporation in the United States and/or other countries.

WirelessWall is a registered trademark of TLC-Chamonix, LLC.

Garmin is a registered trademark of Garmin Ltd. or its subsidiaries.

Quotation Number: 0020019113

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CANBERRA

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Request for quotation:
Incoterms: FOB MERIDEN, CT
Date Issued: 04/28/2014
Shipment Method: Best Way
Valid To: 05/28/2014
Freight Terms: PPA
Payment Terms: NET 30 DAYS
Estimated Shipment ARO: 30 DAYS
Subject To Credit Approval

Item Number	Quantities Quoted	Material Number	Description of goods ECAMS	Unit Price	Total Price	Currency
100	5	00-6828-1.0	ECAM GEN 3 MCA ALPHA BETA			USD
200	5	00-6829-1.0	ALARM OPTION ECAM			USD
300	5	00-6681-1.0	GPS OPTION ECAM			USD
400	5	00-6682-1.0	WIND SENSOR OPTION ECAM			USD
500	1	AS085	CAM SAMPLING HEAD CAL SOURCE, 1700 PIPS -For AS1700XX CAM Heads			USD
600	1	00-6834-1.0	ASY ECAM BETA CALIBRATION SOUR			USD
700	1	10-5025	RADHAWK CLIENT SOFTWARE			USD
800	1	07-7106	FILTER PAPER 47MM 5UM PORE 100PK			USD
900	1	00-6833-1.0	ECAM SPARE FILTER CARTRIDGE SET			USD
1000	5	BIF	ECAM CARRYING CASE			USD

Ex. 2 - Internal Rules and Practices of Agency

Comments:

Sub Total USD

Total USD

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The products, technology and pricing referenced herein are for US sale and installation only, unless otherwise specified.

All exports require compliance with the U.S. Export Administration Regulations, as well as all other applicable regulations.

To see Canberra's standard terms of condition of sale and warranty, please visit http://www.canberra.com/terms.asp